EMPACT ANALYTICAL SYSTEMS INC.
365 S. MAIN ST.
BRIGHTON, CO
80601

303-637-0150

EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

PROJECT NO. :	201401138	ANALYSIS NO. :	01
COMPANY NAME :	LT ENVIRONMENTAL	ANALYSIS DATE:	JANUARY 30, 2014
ACCOUNT NO. :		SAMPLE DATE :	JANUARY 28, 2014
PRODUCER :		CYLINDER NO. :	1151
LEASE NO. :	SAMPLE ID: #09777_1-28-14_BDH	SAMPLED BY :	JAMES DOCKTER
NAME/DESCRIP :	WEICHEL GORDON P2 @ 11:50 BRADENHEAD SAMPLING		
FIELD DATA		SAMPLE TEMP. :	
SAMPLE PRES. :		AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT O2>0.1% - EMPACT		

COMPONENT	MOLE %	MASS %	GPM @ 14.650	GPM @ 14.730
ALCOHOLS	0.0029	0.0040		
HELIUM	0.00	0.00	---	---
HYDROGEN	0.49	0.03	---	---
OXYGEN/ARGON	6.03	6.70	---	---
NITROGEN	73.55	71.58	---	---
CARBON DIOXIDE	0.08	0.12	---	---
METHANE	11.95910	6.66260	---	---
ETHANE	2.3966	2.5034	0.6376	0.6411
PROPANE	1.6017	2.4536	0.4390	0.4414
I-BUTANE	0.3304	0.6671	0.1078	0.1084
N-BUTANE	1.0695	2.1594	0.3353	0.3371
I-PENTANE	0.5096	1.2734	0.1826	0.1836
N-PENTANE	0.6670	1.6718	0.2405	0.2418
HEXANES PLUS	1.3132	4.1747	0.5250	0.5274
TOTALS	100.00000	100.00000	2.4678	2.4808

BTEX COMPONENTS	**MOLE%**	**WT%**
BENZENE	0.0364	0.0988
TOLUENE	0.0324	0.1037
ETHYLBENZENE	0.0010	0.0037
XYLENES	0.0064	0.0236
TOTAL BTEX	0.0762	0.2298

	BTU @	14.650	14.730
LOW	NET DRY REAL :	330.3 **/scf**	332.1 **/scf**
	NET WET REAL :	324.5 **/scf**	326.3 **/scf**
HIGH	GROSS DRY REAL :	360.8 **/scf**	362.8 **/scf**
	GROSS WET REAL :	354.5 **/scf**	356.5 **/scf**
	NET DRY REAL :	4375.4 **/lb**	4399.3 **/lb**
	GROSS DRY REAL :	4779.6 **/lb**	4805.7 **/lb**
	RELATIVE DENSITY (AIR=1):		0.9927
	COMPRESSIBILITY FACTOR :		0.99907

(CALC: GPA STD 2145 & TP-17 @14.696 & 60 F)

**(DETAILED HYDROCARBON ANALYSIS/NJ 1993) ; ASTM D6730*

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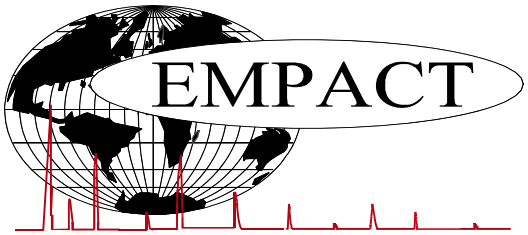
GLYCALC INFORMATION

PROJECT NO. :	201401138	ANALYSIS NO. :	01
COMPANY NAME :	LT ENVIRONMENTAL	ANALYSIS DATE:	JANUARY 30, 2014
ACCOUNT NO. :		SAMPLE DATE :	JANUARY 28, 2014
PRODUCER :		CYLINDER NO. :	1151
LEASE NO. :	SAMPLE ID: #09777_1-28-14_BDH	SAMPLED BY :	JAMES DOCKTER
NAME/DESCRIP :	WEICHEL GORDON P2 @ 11:50 BRADENHEAD SAMPLING		
FIELD DATA		SAMPLE TEMP. :	
SAMPLE PRES. :		AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT O2>0.1% - EMPACT		

Componet	Mole %	Wt %
Helium	0.00	0.00
Hydrogen	0.49	0.03
Carbon Dioxide	0.08	0.12
Nitrogen	73.55	71.58
Methane	11.95910	6.66260
Ethane	2.3966	2.5034
Propane	1.6017	2.4536
Isobutane	0.3304	0.6671
n-Butane	1.0695	2.1594
Isopentane	0.4536	1.1369
n-Pentane	0.6670	1.6718
Cyclopentane	0.0560	0.1365
n-Hexane	0.2923	0.8751
Cyclohexane	0.1000	0.2924
Other Hexanes	0.4469	1.3290
Heptanes	0.2364	0.8182
Methycyclohexane	0.0651	0.2221
2,2,4 Trimethylpentane	0.0002	0.0008
Benzene	0.0364	0.0988
Toluene	0.0324	0.1037
Ethylbenzene	0.0010	0.0037
Xylenes	0.0064	0.0236
C8+ Heavies	0.0961	0.4073
Subtotal	93.96710	93.29600
Oxygen/Argon	6.03	6.70
Alcohols	0.0029	0.0040
Total	100.00000	100.00000



EXTENDED NATURAL GAS ANALYSIS (*DHA)

DHA COMPONENT LIST

PROJECT NO. :	201401138	ANALYSIS NO. :	01
COMPANY NAME :	LT ENVIRONMENTAL	ANALYSIS DATE:	JANUARY 30, 2014
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PRODUCER :		CYLINDER NO. :	1151
LEASE NO. :	SAMPLE ID: #09777_1-28-14_BDH	SAMPLED BY :	JAMES DOCKTER
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FIELD DATA		SAMPLE TEMP. :	
SAMPLE PRES. :		AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT O2>0.1% - EMPACT		

COMPONENT	PIANO #	MOLE %	MASS %	GPM @ 14.650	GPM @ 14.730
Helium	---	0.00	0.00	---	---
Hydrogen	---	0.49	0.03	---	---
Oxygen/Argon	---	6.03	6.70	---	---
Nitrogen	---	73.55	71.58	---	---
Carbon Dioxide	---	0.08	0.12	---	---
Methane	P1	11.95910	6.66260	---	---
Ethane	P2	2.3966	2.5034	0.638	0.641
Propane	P3	1.6017	2.4536	0.439	0.441
i-Butane	I4	0.3304	0.6671	0.108	0.108
Methanol	X1	0.0020	0.0022	0.000	0.000
n-Butane	P4	1.0691	2.1586	0.335	0.337
2,2-Dimethylpropane	I5	0.0021	0.0053	0.001	0.001
Ethanol	X2	0.0001	0.0002	0.000	0.000
i-Pentane	I5	0.4515	1.1316	0.165	0.166
Acetone	X3	0.0006	0.0012	0.000	0.000
i-Propanol	X3	0.0001	0.0002	0.000	0.000
UnknownC4s	U4	0.0004	0.0008	0.000	0.000
n-Pentane	P5	0.6667	1.6710	0.241	0.242
t-Butanol	X4	0.0001	0.0002	0.000	0.000
2,2-Dimethylbutane	I6	0.0045	0.0135	0.002	0.002
Cyclopentane	N5	0.0560	0.1365	0.017	0.017
2,3-Dimethylbutane	I6	0.0219	0.0656	0.009	0.009
2-Methylpentane	I6	0.1924	0.5760	0.080	0.080
3-Methylpentane	I6	0.0990	0.2964	0.040	0.040
UnknownC5s	U5	0.0003	0.0008	0.000	0.000
n-Hexane	P6	0.2923	0.8751	0.120	0.120
2,2-Dimethylpentane	I7	0.0029	0.0101	0.001	0.001
Methylcyclopentane	N6	0.1289	0.3769	0.046	0.046
2,4-Dimethylpentane	I7	0.0107	0.0372	0.005	0.005
2,2,3-Trimethylbutane	I7	0.0004	0.0014	0.000	0.000
Benzene	A6	0.0364	0.0988	0.010	0.010
3,3-Dimethylpentane	I7	0.0013	0.0045	0.001	0.001
Cyclohexane	N6	0.1000	0.2924	0.034	0.034
2-Methylhexane	I7	0.0358	0.1246	0.017	0.017
2,3-Dimethylpentane	I7	0.0141	0.0491	0.006	0.006
1,1-Dimethylcyclopentane	N7	0.0129	0.0440	0.005	0.005
3-Methylhexane	I7	0.0355	0.1236	0.016	0.016
1c,3-Dimethylcyclopentane	N7	0.0154	0.0525	0.007	0.007
1t,3-Dimethylcyclopentane	N7	0.0137	0.0467	0.006	0.006
3-Ethylpentane	I7	0.0020	0.0070	0.001	0.001
1t,2-Dimethylcyclopentane	N7	0.0212	0.0723	0.010	0.010
2,2,4-Trimethylpentane	I8	0.0002	0.0008	0.000	0.000

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UnknownC6s	U6	0.0002	0.0006	0.000	0.000
n-Heptane	P7	0.0668	0.2325	0.031	0.031
1c,2-Dimethylcyclopentane	N7	0.0016	0.0055	0.001	0.001
Methylcyclohexane	N7	0.0651	0.2221	0.026	0.026
2,2-Dimethylhexane	I8	0.0050	0.0198	0.002	0.002
Ethylcyclopentane	N7	0.0021	0.0072	0.001	0.001
2,5-Dimethylhexane	I8	0.0013	0.0052	0.001	0.001
2,2,3-Trimethylpentane	I8	0.0004	0.0016	0.000	0.000
2,4-Dimethylhexane	I8	0.0024	0.0095	0.001	0.001
1c,2t,4-Trimethylcyclopentane	N8	0.0033	0.0129	0.002	0.002
3,3-Dimethylhexane	I8	0.0004	0.0016	0.000	0.000
1t,2c,4-Trimethylcyclopentane	N8	0.0024	0.0093	0.001	0.001
2,3,4-Trimethylpentane	I8	0.0005	0.0020	0.000	0.000
2,3,3-Trimethylpentane	I8	0.0001	0.0004	0.000	0.000
Toluene	A7	0.0324	0.1037	0.011	0.011
2,3-Dimethylhexane	I8	0.0020	0.0079	0.001	0.001
2-Methyl-3-ethylpentane	I8	0.0004	0.0016	0.000	0.000
2-Methylheptane	I8	0.0087	0.0345	0.004	0.004
4-Methylheptane	I8	0.0024	0.0095	0.001	0.001
3-Methyl-3-ethylpentane	I8	0.0003	0.0012	0.000	0.000
3,4-Dimethylhexane	I8	0.0004	0.0016	0.000	0.000
1c,2c,4-Trimethylcyclopentane	N8	0.0001	0.0004	0.000	0.000
1c,3-Dimethylcyclohexane	N8	0.0002	0.0008	0.000	0.000
3-Methylheptane	I8	0.0040	0.0159	0.002	0.002
1c,2t,3-Trimethylcyclopentane	N8	0.0070	0.0273	0.004	0.004
3-Ethylhexane	I8	0.0003	0.0012	0.000	0.000
1t,4-Dimethylcyclohexane	N8	0.0027	0.0105	0.001	0.001
1,1-Dimethylcyclohexane	N8	0.0011	0.0043	0.000	0.000
3t-Ethylmethylcyclopentane	N8	0.0004	0.0016	0.000	0.000
2t-Ethylmethylcyclopentane	N8	0.0003	0.0012	0.000	0.000
1,1-Methylethylcyclopentane	N8	0.0007	0.0027	0.000	0.000
2,2,4-Trimethylhexane	I9	0.0002	0.0009	0.000	0.000
1t,2-Dimethylcyclohexane	N8	0.0028	0.0109	0.001	0.001
n-Octane	P8	0.0096	0.0381	0.005	0.005
1c,4-Dimethylcyclohexane	N8	0.0020	0.0078	0.001	0.001
i-Propylcyclopentane	I8	0.0002	0.0008	0.000	0.000
2,4,4-Trimethylhexane	I9	0.0001	0.0005	0.000	0.000
2,3,5-Trimethylhexane	I9	0.0003	0.0013	0.000	0.000
2,2,3,4-Tetramethylpentane	I9	0.0001	0.0005	0.000	0.000
2,3,4-Trimethylhexane	I9	0.0002	0.0009	0.000	0.000
1c,2-Dimethylcyclohexane	N8	0.0008	0.0031	0.000	0.000
1,1,4-Trimethylcyclohexane	N9	0.0034	0.0149	0.002	0.002
2,2,3-Trimethylhexane	I9	0.0011	0.0049	0.001	0.001
4,4-Dimethylheptane	I9	0.0002	0.0009	0.000	0.000
Ethylcyclohexane	N8	0.0016	0.0063	0.001	0.001
n-Propylcyclopentane	N8	0.0007	0.0027	0.000	0.000
1c,3c,5-Trimethylcyclohexane	N9	0.0002	0.0009	0.000	0.000
2,5-Dimethylheptane	I9	0.0001	0.0005	0.000	0.000
3,3-Dimethylheptane	I9	0.0002	0.0009	0.000	0.000
3,5-Dimethylheptane	I9	0.0001	0.0005	0.000	0.000
2,6-Dimethylheptane	I9	0.0001	0.0005	0.000	0.000
1,1,3-Trimethylcyclohexane	N9	0.0002	0.0009	0.000	0.000
Ethylbenzene	I8	0.0010	0.0037	0.000	0.000
1c,2t,4t-Trimethylcyclohexane	N9	0.0007	0.0031	0.000	0.000
2,3-Dimethylheptane	I9	0.0001	0.0005	0.000	0.000
1,3-Dimethylbenzene (m-Xylene)	A8	0.0029	0.0107	0.001	0.001
1,4-Dimethylbenzene (p-Xylene)	A8	0.0019	0.0070	0.001	0.001
3,4-Dimethylheptane	I9	0.0016	0.0071	0.001	0.001
3,4-Dimethylheptane (2)	I9	0.0003	0.0013	0.000	0.000
4-Ethylheptane	I9	0.0001	0.0005	0.000	0.000
4-Methyloctane	I9	0.0007	0.0031	0.000	0.000
2-Methyloctane	I9	0.0008	0.0036	0.000	0.000
1c,2t,3-Trimethylcyclohexane	N9	0.0001	0.0005	0.000	0.000
3-Ethylheptane	I9	0.0002	0.0009	0.000	0.000
3-Methyloctane	I9	0.0009	0.0040	0.001	0.001
1c,2t,4c-Trimethylcyclohexane	I9	0.0001	0.0005	0.000	0.000
1,1,2-Trimethylcyclohexane	N9	0.0001	0.0005	0.000	0.000
3,3-Diethylpentane	I9	0.0001	0.0005	0.000	0.000

1,2-Dimethylbenzene (o-Xylene)	A8	0.0016	0.0059	0.001	0.001
i-Butylcyclopentane	N9	0.0007	0.0031	0.000	0.000
n-Nonane	P9	0.0021	0.0093	0.001	0.001
1,1-Methylethylcyclohexane	N9	0.0004	0.0017	0.000	0.000
i-Propylbenzene	A9	0.0003	0.0013	0.000	0.000
i-Propylcyclohexane	N9	0.0002	0.0009	0.000	0.000
2,2-Dimethyloctane	I10	0.0001	0.0005	0.000	0.000
2,4-Dimethyloctane	I10	0.0001	0.0005	0.000	0.000
2,5-Dimethyloctane	I10	0.0001	0.0005	0.000	0.000
n-Butylcyclopentane	N9	0.0007	0.0031	0.000	0.000
3,3-Dimethyloctane	I10	0.0001	0.0005	0.000	0.000
n-Propylbenzene	A9	0.0005	0.0021	0.000	0.000
3,6-Dimethyloctane	I10	0.0002	0.0010	0.000	0.000
3-Methyl-5-ethylheptane	I10	0.0003	0.0015	0.000	0.000
1,3-Methylethylbenzene	A9	0.0004	0.0017	0.000	0.000
1,4-Methylethylbenzene	A9	0.0002	0.0008	0.000	0.000
1,3,5-Trimethylbenzene	A9	0.0004	0.0017	0.000	0.000
2,3-Dimethyloctane	I10	0.0001	0.0005	0.000	0.000
5-Methylnonane	I10	0.0003	0.0015	0.000	0.000
1,2-Methylethylbenzene	A9	0.0002	0.0008	0.000	0.000
3-Ethyloctane	I10	0.0001	0.0005	0.000	0.000
3-Methylnonane	I10	0.0002	0.0010	0.000	0.000
t-Butylbenzene	A10	0.0008	0.0037	0.000	0.000
i-Butylcyclohexane	N10	0.0002	0.0010	0.000	0.000
1t-Methyl-2-n-propylcyclohexane	I10	0.0001	0.0005	0.000	0.000
i-Butylbenzene	A10	0.0001	0.0005	0.000	0.000
UnknownC9s	U9	0.0019	0.0085	0.001	0.001
n-Decane	P10	0.0008	0.0040	0.000	0.000
1,2,3-Trimethylbenzene	A9	0.0002	0.0008	0.000	0.000
1,3-Methyl-i-propylbenzene	A10	0.0001	0.0005	0.000	0.000
Sec-Butylcyclohexane	A10	0.0003	0.0015	0.000	0.000
1,2-Methyl-i-propylbenzene	A10	0.0002	0.0009	0.000	0.000
1,3-Diethylbenzene	A10	0.0001	0.0005	0.000	0.000
1,3-Methyl-n-propylbenzene	A10	0.0001	0.0005	0.000	0.000
1,4-Diethylbenzene	A10	0.0001	0.0005	0.000	0.000
n-Butylbenzene	A10	0.0001	0.0005	0.000	0.000
1,3-Dimethyl-5-ethylbenzene	A10	0.0001	0.0005	0.000	0.000
1,2-Diethylbenzene	A10	0.0001	0.0005	0.000	0.000
1,2-Methyl-n-propylbenzene	A10	0.0001	0.0005	0.000	0.000
1,4-Dimethyl-2-ethylbenzene	A10	0.0001	0.0005	0.000	0.000
1,2-Dimethyl-4-ethylbenzene	A10	0.0001	0.0005	0.000	0.000
1,4-Methyl-t-butylbenzene	A11	0.0001	0.0005	0.000	0.000
UnknownC10s	U10	0.0018	0.0089	0.001	0.001
n-Undecane	P11	0.0004	0.0022	0.000	0.000
UnknownC11s	U11	0.0008	0.0043	0.001	0.001
n-Dodecane	P12	0.0002	0.0012	0.000	0.000
UnknownC12s	U12	0.0001	0.0006	0.000	0.000
n-Tridecane	P13	0.0002	0.0013	0.000	0.000
UnknownC13s	U13	0.0001	0.0006	0.000	0.000
n-Tetradecane	P14	0.0005	0.0034	0.000	0.000
UnknownC14s	U14	0.0002	0.0014	0.000	0.000
n-Pentadecane	P15	0.0005	0.0037	0.000	0.000
UnknownC15s	U15	0.0002	0.0015	0.000	0.000
n-Hexadecane	P16	0.0003	0.0024	0.000	0.000
UnknownC16s	U16	0.0001	0.0008	0.000	0.000
n-Heptadecane	P17	0.0001	0.0008	0.000	0.000
UnknownC17s	U17	0.0001	0.0008	0.000	0.000
n-Octadecane	P18	0.0001	0.0009	0.000	0.000
UnknownC18s	U18	0.0001	0.0009	0.000	0.000
UnknownC19s	U19	0.0001	0.0009	0.000	0.000
TOTAL		100.00000	100.00000	2.4678	2.4808

BTEX COMPONENTS	**MOLE%**	**WT%**
BENZENE	0.0364	0.0988
TOLUENE	0.0324	0.1037
ETHYLBENZENE	0.0010	0.0037
XYLENES	0.0064	0.0236
TOTAL BTEX	0.0762	0.2298

	BTU @	14.650		14.730
LOW	NET DRY REAL :	330.3	**/scf**	332.1 **/scf**
	NET WET REAL :	324.5	**/scf**	326.3 **/scf**
HIGH	GROSS DRY REAL :	360.8	**/scf**	362.8 **/scf**
	GROSS WET REAL :	354.5	**/scf**	356.5 **/scf**
	NET DRY REAL :	4375.4	**/lb**	4399.3 **/lb**

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GROSS DRY REAL :	4779.6 **/lb**	4805.7 **/lb**
RELATIVE DENSITY (AIR=1):		0.9927
COMPRESSIBILITY FACTOR :		0.99907

(CALC: GPA STD 2145 & TP-17 @14.696 & 60 F)

**(DETAILED HYDROCARBON ANALYSIS/NJ 1993) ; ASTM D6730*

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365 South Main Street
Brighton, CO 80601
303-637-0150

CHAIN OF CUSTODY RECORD

CO. NAME: LTE	CONTACT NAME: Andy Verbonitz	TELE. NO.: 303-549-3262	LAB PROJECT NO. 20140138
Sampler (PRINT NAME): James Dockter	Signature:	FAX NO:	
PROJECT INFO. / NO. Braden Heard Sampling			

SAMPLE ID	~~SAMPLE DESCRIPTION~~	Comp.	Grab	Date	TIme	SAMPLE MATRIX	Container	No. of Containers	ANALYSIS / METHOD	REMARKS
09777	1-28-14 BHD		X	1/28/14	1150	Gas	Evac cyl	1	DITA-NG	Weichel Gordon P2
										Standard turn

COMMENTS: Please send results to AVerbonitz@LTEnv.com, JCocroft@LTEnv.com, JDockter@LTEnv.com

Relinquished by:(Signature)		Received by:(Signature)		TIme: 12:46	Date: 1/28/14
Relinquished by:(Signature)		Received by:(Signature)		TIme:	Date:
Laboratory:		Received for Laboratory by:		TIme: 4:35p	Date: 1/28/14
Method of Shipment:		Dispatched by:(Signature)		TIme:	Date: